

The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.

Paper No. 22

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOHN C. TSAI

Appeal No. 2001-2088
Application No. 09/121,177

ON BRIEF

Before KRASS, BLANKENSHIP and SAADAT, Administrative Patent Judges.

KRASS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1-6, 9 and 10. Claims 7, 8 and 11-16 have been indicated by the examiner as being allowable and form no part of this appeal.

The invention is directed to a servo track writing apparatus

for accurately positioning a magnetic head mounted on a positioning arm. The positioning arm is located within a disk drive assembly and has a through hole. An external tracking arm is moved in a fixed relationship with the positioning arm of the disk drive assembly. The tracking arm has a detection system mounted thereon for detecting the edges of the through hole in the positioning arm, thereby maintaining it in a fixed positional relationship with the positioning arm inside the disk drive assembly.

Representative independent claim 1 is reproduced as follows:

1. A servo track writing apparatus for positioning a read/write head in a disk drive assembly wherein the read/write head is mounted on a positioning arm, the positioning arm has a through hole therein, and the positioning arm is movable by a positioning means over a media, the writing apparatus comprising:

a tracking arm located external to the disk drive assembly;

moving means for moving said tracking arm in fixed relationship with the positioning arm;

position determining means for determining the position of said tracking arm;

detection means for detecting the edges of the through hole of the positioning arm relative to the tracking arm; and

a control unit suitable to:

operate said moving means and said detection means such that said tracking arm and the positioning arm attain a particular

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geometric relationship;

operate said moving means and the positioning means such that said tracking arm and the positioning arm synchronously are maintained in said geometric relationship;

operate said position determining means to measure the position of said tracking arm and therefrom infer the positions of the positioning arm and the read/write head inside the disk drive assembly; and

direct the disk drive assembly to position and maintain the read/write head as desired for servo track writing in the media.

The examiner relies on the following reference:

Tsai	5,315,372	May 24, 1994
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Claims 1-6, 9 and 10 stand rejected under 35 U.S.C. 103 as unpatenable over Tsai.

Reference is made to the briefs and the answer for the respective positions of appellant and the examiner.

OPINION

At the outset, we note that the prior art reference applied against the instant claims is a patent issued to appellant. The instant invention is said to be an improvement over that patent

(the patent is discussed at pages 2-3 of the instant specification), the improvement being the detection of the edges of the through hole in the positioning arm. The specification explains how such detection is used to provide non-invasive arm position sensing which results in an efficient way to directly and accurately determine the position of a very small positioning arm and providing for adjustment of the position by producing highly defined positional feedback.

Nevertheless, the examiner finds that the instant claimed invention would have been obvious over the disclosure of Tsai, referring to column 6, line 60 to column 7, line 29 of the reference. The reference detects the edges of the reflected laser beam and the examiner holds that it is an "alternative equivalence...to detect the beam edges is merely a true indication of the through hole edges, since the amount of light beam incident on the photo detector going through the hole is directly proportional to the amount of the light beam blocked by the hole edges" [answer-page 3].

While the examiner's rationale may have some credence if there was some indication that the laser beam passing through the hole does not diverge, i.e. the width of the beam passing through the through hole is the width of the through hole if it does not

spread out after passing through the through hole, we have no such evidence that that is the case.

All of the rejected claims contain the limitation of "detecting the edges of the through hole of the positioning arm". The applied reference simply does not refer to such a step, detecting, instead, the edges of the reflected laser beam. The examiner's position is that detection of the edges of the reflected laser beam is somehow equivalent to detecting the edges of the through hole because of a direct proportion of the light beam incident on the photodetectors to the amount of the light beam blocked by the hole edges. Whatever "proportion" is being referred to by the examiner, there is still no through hole edge detection disclosed or suggested by Tsai. If the examiner is contending that by measuring the edges of the beam width, this somehow indicates the edges of the through hole, we disagree. While this *may* be true for beam widths which do not vary after exiting the through hole, in most cases, the beam may diverge from the through hole. If this is the case, then measurement of beam width by detecting the edges of the beam, does not indicate the edges of the through hole since the beam width will vary with distance from the through hole. Without knowing the distance

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from the through hole, width of the beam at any particular distance from the through hole would indicate nothing about the edges of the through hole.

Moreover, even if the edges of the through hole might be able to be derived from measurements made by Tsai, this is no indication as to why it would have been obvious to do so. It is also no indication as to why it would have been obvious to then apply the through hole edge detection, even if such detection could be derived from Tsai, in such a manner as to cause the positioning of a read/write head as desired for servo track writing.

Accordingly, since the examiner has not convincingly shown how Tsai is considered to detect the edges of the through hole of the positioning arm and to employ such detection in positioning a read/write head in a disk drive assembly, we will not sustain the rejection of claims 1-6, 9 and 10 under 35 U.S.C. 103.

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The examiner's decision is reversed.

REVERSED

ERROL A. KRASS)	
Administrative Patent Judge)	
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HOWARD B. BLANKENSHIP)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
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